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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,677	01/18/2004	Steven A. Gronemeyer	ST00001C1 (217-US-C1)	8617

7590 05/10/2006
Jennifer Hammond
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EXAMINER

MULL, FRED H

ART UNIT	PAPER NUMBER
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3662

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/759,677	Applicant(s) GRONEMEYER, STEVEN A.	
	Examiner Fred H. Mull	Art Unit 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1,3-7,9,10,13 and 15 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 7,9,10,13 and 15 is/are allowed.
- 6) ☐ Claim(s) 1, 5-6 is/are rejected.
- 7) ☐ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments have been fully considered and are persuasive. The objections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains.

The abstract of the disclosure is objected to because it states that which is new in the art in the invention of the parent application, and not that which is new in the art in the invention of the current application. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claim(s) 3 is/are objected to under 37 CFR 1.75 because of the following informalities:

The equation that comprises line 3 of the claim should be the final line of the claim, as it was in the previous version of the claim. The claim does not make sense with it positioned in line 3.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Salkhi, previously cited.

In regard to claim 1, Salkhi discloses:

a receiver receiving a signal having a plurality of pseudo-noise codes, where each of the pseudo-noise codes of the plurality of pseudo-noise codes originates from a GPS transmitter (§ 4);

a local clock with an error of less than 0.5 ms relative to a GPS time (§ 36, where Salkhi teaches that the local clock is synchronized to within 0.25 ms of the signal); and

a decoder connected to the receiver and the local clock that is synchronized to the signal, identifies four pseudorange equations for at least four GPS transmitters from the plurality of GPS transmitters (§ 36), and determines a location of the receiver by simultaneously solving the pseudorange equations (§ 9), where at least three encompasses four.

It is inherent that a plurality of chips making up each pseudo noise code in the plurality of noise and the plurality of chips will be offset between (a) 511 chips before a pseudo noise code boundary and (b) 512 chips after the pseudo noise code boundary.

Applicant admits in ¶47 of the specification that "The chip actually received at time $T+dT$ is expected to be received at a code phase no more than 511 chips before 404 and no less than 512 chips after 410 \hat{C}_j 402. This is because the assumed time error

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(due to both time error and time-equivalent position error) is less than one half code period, or 0.5 ms.” In other words, by virtue of the fact that the clock error is less than 0.5 ms (which Salkhi teaches in ¶ 36), the offset will automatically be within the given range.

This is illustrated as follows:

To determine the number of chips within a possible clock error of 0.5 ms, one divides the clock error by the chip time:

$$\text{chips per clock error} = (\text{clock error}) / (\text{chip time})$$

The chip time is the inverse of the chip rate, which for GPS C/A code is 1.023×10^6 chips/s.

$$\begin{aligned}\text{chips per clock error} &= (\text{clock error}) * (\text{chip rate}) \\ &= (0.5 \times 10^{-3} \text{ s}) * (1.023 \times 10^6 \text{ chips/s}) \\ &= 511.5 \text{ chips}\end{aligned}$$

which shows that the offset one would expect to be present for a clock error of 0.5 ms is approximately +/- 512 chips.

In regard to claim 6, Salkhi further discloses a temperature sensor attached to a crystal in the local clock to take heat measurements of the crystal and reports heat measurements to the decoder to enable the decoder to adjust the local clock readings in response to heat measurements (¶ 18-20).

Claim Rejections - 35 USC § 103

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salkhi.

Salkhi discloses that synchronization to correct clock error is not necessary for a clock-bias of less than 0.5 ms relative to a GPS time. This allows faster acquisition. However, once the GPS signal is acquired, it would be obvious to correct the clock time error so that during the next iteration (when the position will be needed after a standby time) it is more likely that the clock-bias will be less than 0.5 ms at that time, so that the signal can be fast-acquired again. Otherwise, if the clock-bias is drifting at 0.3 ms an iteration, every other iteration a slow acquisition would be necessary.

6. The examiner also finds the following reference(s) relevant:

IDS document Kohli (US 6,125,325 A), which discloses a local clock with an error of less than 0.5 ms relative to a GPS time (col. 32, lines 52-63; col. 33, line 64 to col. 34, line 4; col. 34, lines 48-59).

Applicant is encouraged to consider these documents in formulating their response (if one is required) to this action, in order to expedite prosecution of this application.

Allowable Subject Matter

7. Claim(s) 7, 9-10, 13, and 15 is/are allowed.
8. Claim(s) 3 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
9. Claim(s) 4 is/are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 571-272-6975. The examiner can normally be reached on Monday through Friday from approximately 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred H. Mull
Examiner
Art Unit 3662

fhm



THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
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